

**STATE OF MONTANA  
WHITETAIL CREEK BRIDGE PROJECT CONTRACT  
ATTACHMENT B**

<b>ROAD CONSTRUCTION, IMPROVEMENT AND MAINTENANCE SPECIFICATIONS</b>	
<b>CONTRACT NAME</b> Whitetail Creek Bridge Project	<b>CONTRACT NUMBER</b>

**I. CONSTRUCTION REQUIREMENTS**

- A. ROADS:** The Contractor is required to construct the roads shown in Table B-1 according to the specifications and drawings in Attachment B and other applicable attachments.

<b>TABLE B-1. ROAD CONSTRUCTION REQUIREMENTS</b>				
Road Name or Number	Approximate Length	Type of Construction	Operation Period	Completion Date
Whitetail bridge improvement	60 feet	Remove wooden bridge and permanently mount the steel temporary bridge	July 1, 2009 – Nov. 30, 2009. Work on the bridge structure must be completed during the low-flow period. * See scheduling requirements below.	Nov. 30, 2009
Approach Reconstruction	875 feet	Relocate south approach and improve north approach	July 1, 2009 – Nov. 30, 2009.	Nov. 30, 2009

**\* SCHEDULING REQUIREMENTS:**

1. Any on-site work requiring the road to be closed must be completed in one 2-4 week period between July 1 and November 30.
2. Preparatory work including stockpiling of supplies and prefabrication of bearing pads and wing walls should be completed prior to beginning on-site work. On-site stockpiling prior to operations will be allowed in locations approved by the Contract Supervisor.
3. On or before July 1, 2009, the contractor shall provide the State with a proposed operating schedule giving the time period during which operations will be conducted. The state will notify other road users to use alternate routing during this time. The Contract Supervisor must be notified of any changes to the schedule immediately as they become known.

**B. ROAD CONSTRUCTION MATERIALS ESTIMATE:****TABLE B-2: MATERIALS FURNISHED AND INSTALLED BY THE CONTRACTOR:**

The Contractor is required to furnish the described material and install as required in Attachment B. Some quantities are estimated, and the Attachment B requirements and specifications must be met regardless of the estimated amounts. All materials furnished by the Contractor become the property of the State when installed.

Materials	
Amount	Description
2 each	12"x 36" type 3 object marker MUTCD - OM-3L Yellow and black stripes.
2 each	12"x 36" type 3 object marker MUTCD - OM-3R Yellow and black stripes.
	Above signs to be .080 aluminum with engineer grade retroreflective surfacing, plus galvanized 5/16" x 3" lag bolts for mounting.
4 each	4" x 4" x 10' treated sign posts.
2 each	4" x 4" x 6' treated posts for spacers at end of bridge
As required	Galvanized bolts, nuts and washers to mount 120 feet of guardrail.
2 each	Prefabricated Concrete Bearing pads.
4 each	Fabricated wing walls.
150' x 14' wide	Construction fabric
± 350 feet	Filter fabric sediment control fence.
± 350 feet	Slash filter windrows

**TABLE B-2 (CONTINUED): SEED AND FERTILIZER REQUIREMENTS**

The Contractor is required to furnish and apply certified noxious weed-free, pure live seed mixture(s) and fertilizer in the amounts shown. Total pounds mixed seed is pure live seed, corrected for germination and purity. Germination and purity tests must have been conducted within the last 6 months prior to delivery. Contractor shall furnish documentation of germination and purity tests to the Contract Supervisor prior to application.

Certified Noxious Weed-Free Seed		
Pounds	Description	
	<u>Quick cover mix</u>	
6.0	Annual ryegrass	Disturbed areas shall be seeded within one day of construction work, or as otherwise directed by the Contract Supervisor. Application rate per acre = 20 lbs./acre; Estimated acres = 0.6
3.0	Mountain Brome	
<u>3.0</u>	<u>Slender wheatgrass</u>	
12	Total Pounds mixed seed	

**TABLE B-2 (Continued): MATERIALS FURNISHED BY THE STATE:**

The Contractor is required to load and haul the described materials from the State source and install them as required in Attachment B.

Amount	Description	
As needed	W-Beam guardrail for side dams and end of bridge	
Fill Material		
Yards	Type	Source Location
220	2-inch minus gravel	South Woodward pit. Approximately 6 miles south of project
100	Pit-run gravel	South Woodward pit or approved local borrow.
40	Rock armor	South Woodward pit or local borrow

- C. MINOR CHANGES:** The Contract Supervisor may require minor changes in location, design or specifications of road construction, improvement or maintenance requirements. Such changes must be within the scope of Attachment B requirements, and not result in a significant increase or decrease in cost as agreed to by the Contract Supervisor and the Contractor.

## **II. RIGHT-OF-WAY CLEARING**

### **A. CLEAR LIMIT MARKING:**

1. Clear limits for construction are marked with stakes and orange flagging.

### **B. CLEARING REQUIREMENTS:**

1. Clear and grub the bridge approaches and existing fill area. Stockpile slash, large rocks and surface soils for windrows, armoring and reclamation. Large stumps shall be removed and used for reclamation of the abandoned road as directed by the Contract Supervisor. Stumps from small trees and brush may remain attached and be used for slash windrows provided they are shaken clean of dirt.

## **III. EXCAVATION AND EMBANKMENT OF FILL MATERIALS**

### **A. EXCAVATION AND EMBANKMENT:**

1. All grubbing and clearing shall be completed prior to the beginning of any excavation.
2. Surface organic layer and ash cap (surface reddish-brown soils with low gravel content) will be stockpiled for reclamation purposes and spread on abandoned road sections following construction.
3. Fill materials shall be unfrozen and free of snow and ice.
4. Fill materials shall be sorted to remove large rocks over 6 inches diameter near the surface, which may interfere with surface blading. Large rocks should be stockpiled for armoring.
5. All fill materials shall be applied in layers not to exceed 6 inches and each layer compacted with heavy equipment and vibratory drum roller prior to application of the next layer. Operate compaction equipment over the full width of each layer until visible deformation of the layer ceases.

## ATTACHMENT B

6. If fill materials are too dry to allow compaction, the Contract Supervisor may require watering of layers and mixing with heavy equipment.
7. Gravel used for surfacing shall be compacted into place using a vibratory drum roller.

**H. NOXIOUS WEED MANAGEMENT:** The Contractor is required to perform noxious weed management during the term of the project. Noxious weed management includes grass seeding and equipment washing.

1. Grass seeding requirements are shown in Table B-2.
2. All construction equipment must be pressure-washed by the Contractor and inspected by the Contract Supervisor prior to entering the work area. This cleaning will remove all dirt, plant parts, and material that may carry noxious weed seeds into the sale area. Other equipment and vehicles entering and leaving the sale area shall be cleaned prior to start up and kept reasonably clean during the course of operations. Any subsequent move-ins of construction equipment shall be treated the same as the initial move-in.

## VI. ADDITIONAL REQUIREMENTS

### A. TRAFFIC CONTROL AND WARNING SIGN SPECIFICATIONS:

1. The Contractor shall furnish, erect, and maintain all necessary barricades, suitable and sufficient danger signals, signs, and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Suitable warning signs shall be provided to properly control and direct traffic as requested by the Contract Supervisor.
2. The contractor shall install and maintain road closure barricades and work zone signs in the immediate vicinity of the project area. Barricades shall be MUTCD Type III barricades, Orange and white stripes. Minimum 5' tall x 4' wide with 3 ea. 8-12" wide rails.
3. All road barricades, warning signs, and equipment, and other protective devices, shall conform to specifications in the Manual on Uniform Traffic Control Devices (MUTCD).

## VIII. SPECIFICATIONS AND DRAWINGS

**A. REQUIREMENTS:** Any construction requirements or structures shown in Attachment B shall be constructed and installed by the Contractor to specifications in this section. Structures shall be constructed at locations shown in the Road Log and as specified or staked by the Contract Supervisor.

### B. SPECIFICATIONS:

1. Road Construction Fabric: When road construction fabric is required the following specifications shall be met: minimum twenty mills thick with minimum trapezoid tear strength (ASTMD-1117-80) of 110 and mullen burst strength (ASTMD-3786-80) of minimum 375 psi; (e.g. Mirafi 500x or AMOCO 200208).

### C. SPECIFICATION DRAWINGS:

1. GENERAL SPECIFICATIONS
2. GRAVEL AND ROCK SPECIFICATIONS
3. CLEAR LIMITS AND TYPICAL CROSS SECTIONS
4. FILTER FABRIC SEDIMENT CONTROL FENCE
5. STANDARD DRAIN DIP FOR SINGLE LANE ROAD
6. SLASH FILTER WINDROW

7. SIGN SPECIFICATIONS
8. ROAD LOG
9. PLAN VIEW OF ROAD RELOCATION
10. BEARING PAD – PRECAST CONCRETE
11. WING WALL CONSTRUCTION
12. BRIDGE PLANS (2 Pages – original drawings)
13. PROFILE VIEW OF INSTALLATION REQUIREMENTS

GENERAL SPECIFICATIONS	
<p><b>ALIGNMENT</b></p> <p>Minimum Curve Radius:</p> <p>Curves: As marked on the ground</p>	<p><b>CUT SLOPE RATIO</b></p> <p>Common excavation: 1:1</p> <p>Maximum tolerance: plus 15% minus 0%</p>
<p><b>ROAD GRADE MAXIMUM</b></p> <p>Grades as shown in the Road Log</p>	<p><b>FILL SLOPE RATIO</b></p> <p>Common material: 1-1/2:1</p> <p>Maximum tolerance: plus 15% minus 0%</p>
<p><b>DITCHES</b></p> <p>Width: 3 feet</p> <p>Depth: 1 foot</p> <p>Located as shown in the Road Log or as directed by the Contract Supervisor</p>	<p><b>TURNOUTS</b></p> <p>Length: 75 feet</p> <p>Width: 6 feet</p> <p>Located as shown in the Road Log or as directed by the Contract Supervisor</p>
<p><b>USABLE ROAD SURFACE</b></p> <p>Tangents: 18 feet</p> <p>Curves: 18 feet</p> <p>Slough widening: (in addition to usable road surface) Tangents: 1 foot Curves and all fills over 6 feet height: 2 feet.</p>	

GRAVEL AND ROCK SPECIFICATIONS	
Material	Specifications
2" minus crushed gravel	Crushed gravel. Well graded. Fine fraction (minus 200 sieve) not to exceed 15%
Pit run gravel	Native gravel, well graded, with binder, compactable and not containing any rocks over 4" diameter.
Drain rock	1"- 3" diameter, screened clean rock.
<p align="center"><b>General Large Rock Requirements</b></p> <p>Stone shall be hard, durable, angular in shape, resistant to weathering and weather action, and free from overburden, soil, and organic matter. Stone must be hard enough so pieces do not fracture or break during the loading, hauling, or placement activities. Neither breadth nor thickness of stone shall be less than one-third its length. Rounded stone or boulders from a streambed will not be accepted unless authorized by the State.</p>	
Rock armor	Large rock with most sizes ranging from 6" to 12" diameter, used to armor fill slopes and catch basins.
Talus rock	Large rock of variable sizes used as load-bearing fill or drainage rock in soft areas or French drains, as approved by Contract Supervisor.
Energy dissipaters	Large rock 18-24" diameter placed in streams at culvert outlets.

# SPECIFICATION DRAWINGS

## Clear Limits and Typical Cross Sections

CLEARPK.WPG

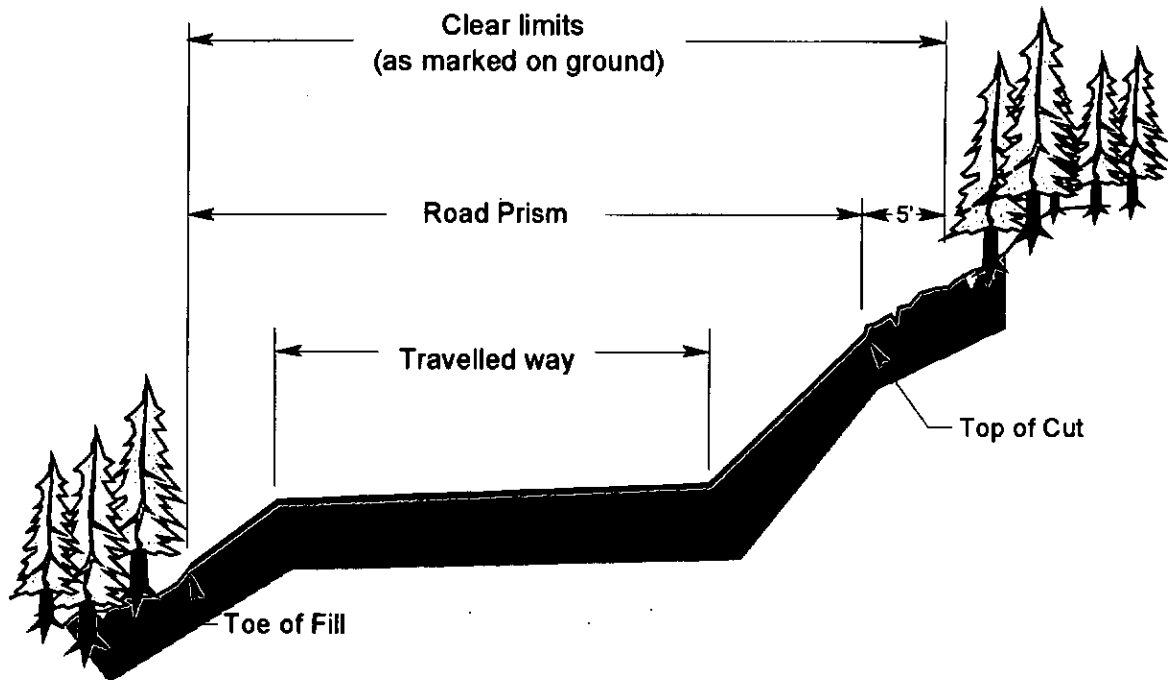


Figure I: Clear limits for New Construction

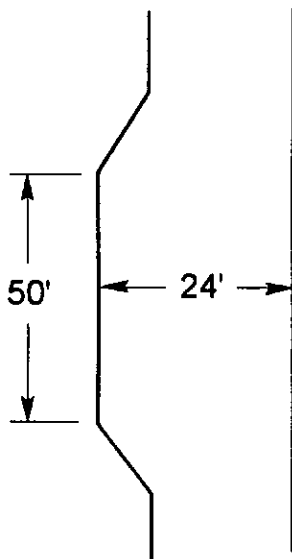


Figure II:  
Typical turn out  
construction

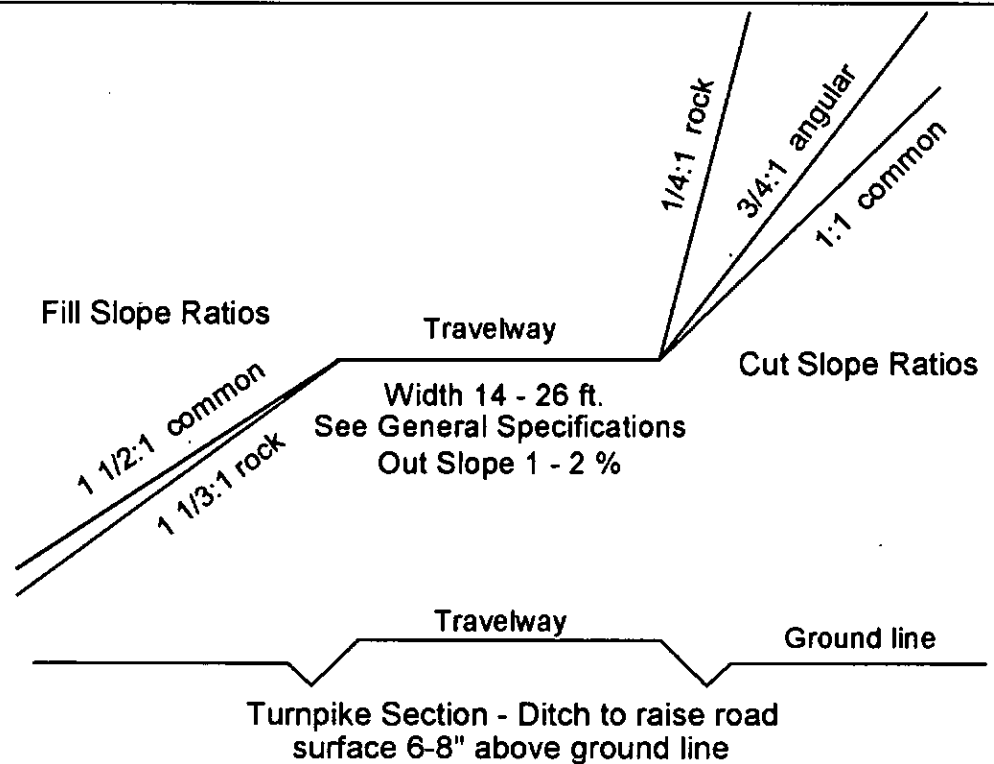


Figure III: Typical Cross Sections

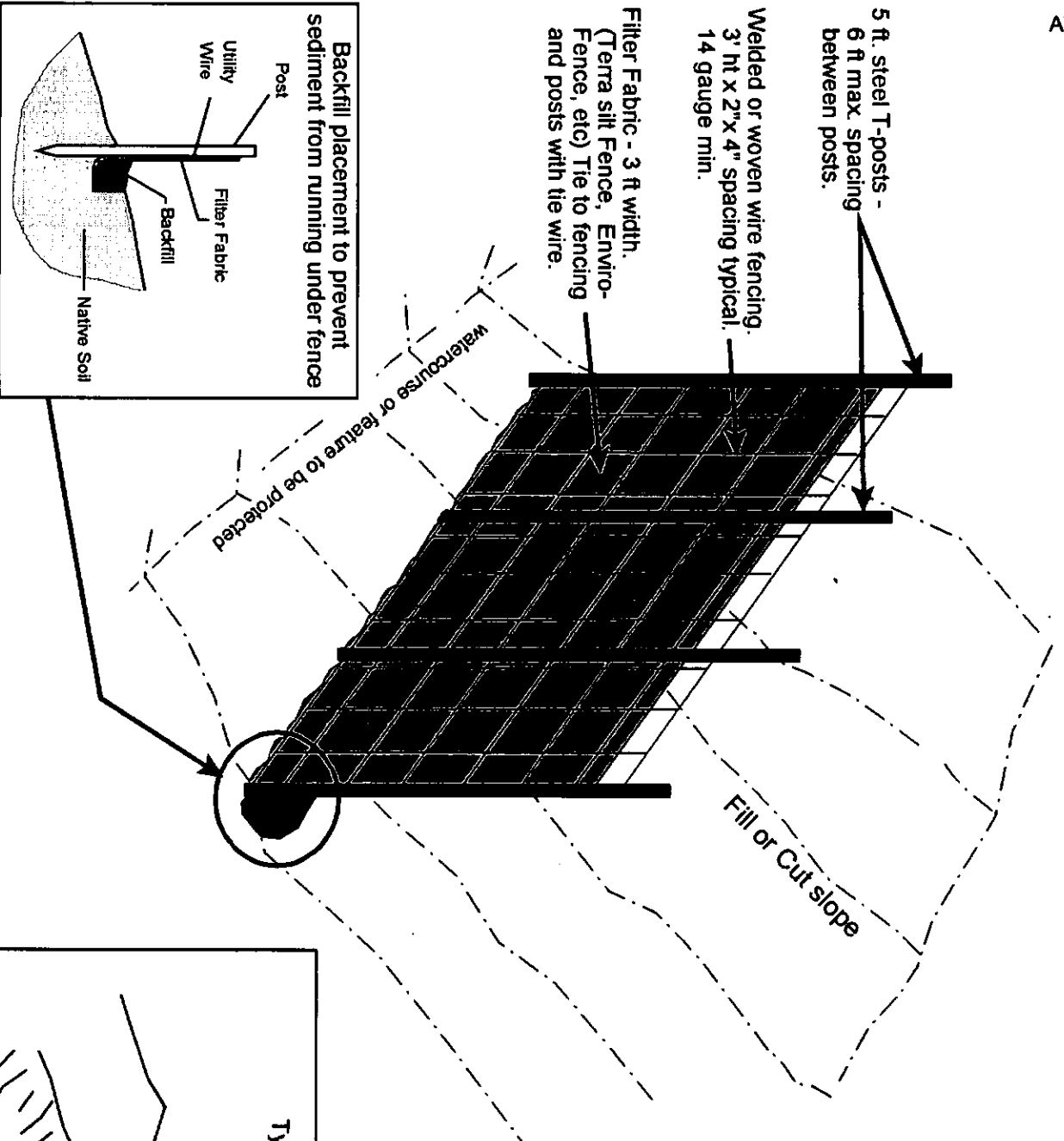


# FILTER FABRIC SEDIMENT CONTROL FENCE

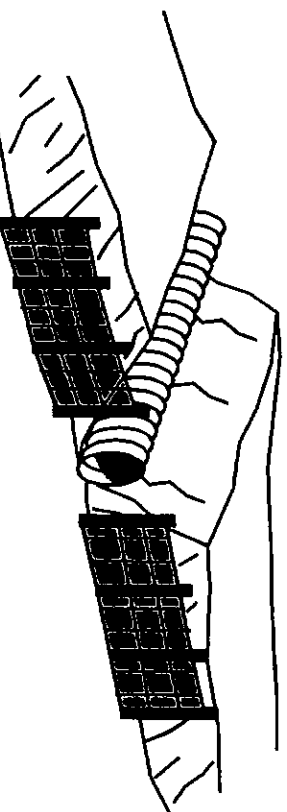
Install on stream bank or fill slopes to prevent sediment from entering watercourses

## INSTALLATION REQUIREMENTS

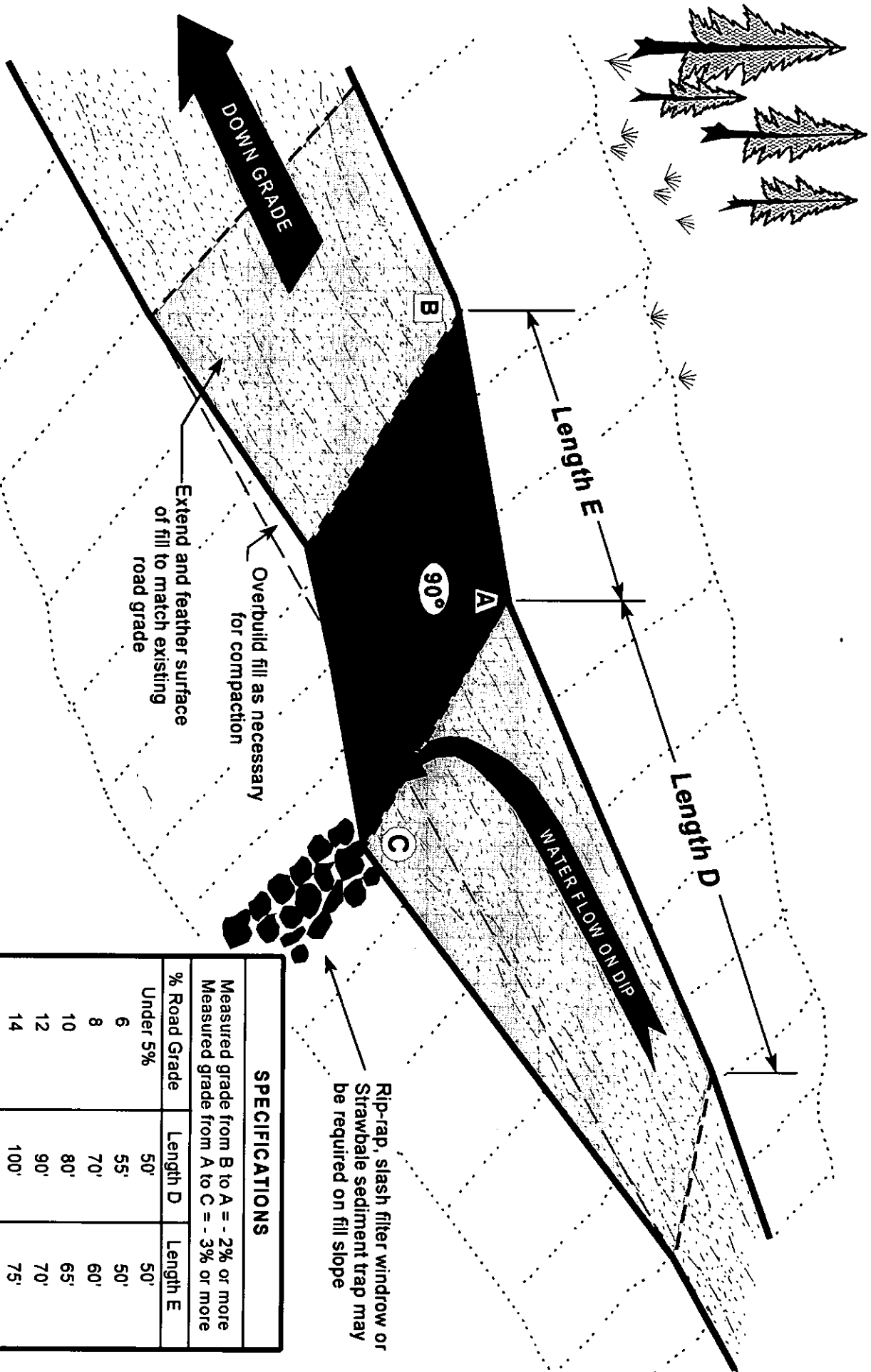
1. Installation may be required prior to any construction activities at crossing sites.
2. Two to four fences per crossing site may be required.
3. Fences will be removed or left in place following construction as directed by the Forest Officer.
4. Wood-staked commercial silt fence may be approved by the Forest Officer only for short-term, light duty fences used for less than one season.
5. Steel posts and wire backing are required for all heavy duty applications, fences where fill may back up against the fence, fences that may overwinter, and permanent applications.



Typical Application at Culvert Installation

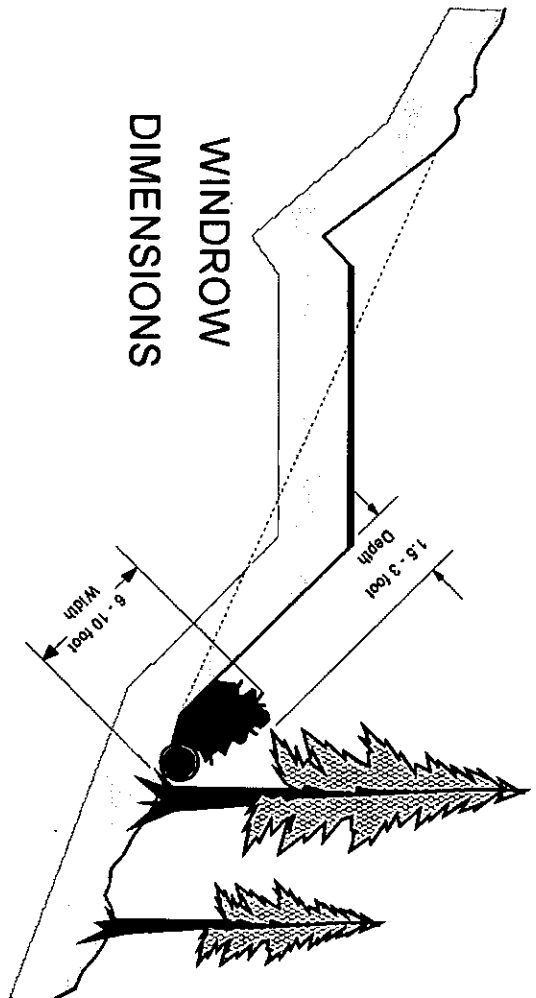


## STANDARD DRAIN DIP FOR SINGLE LANE ROAD

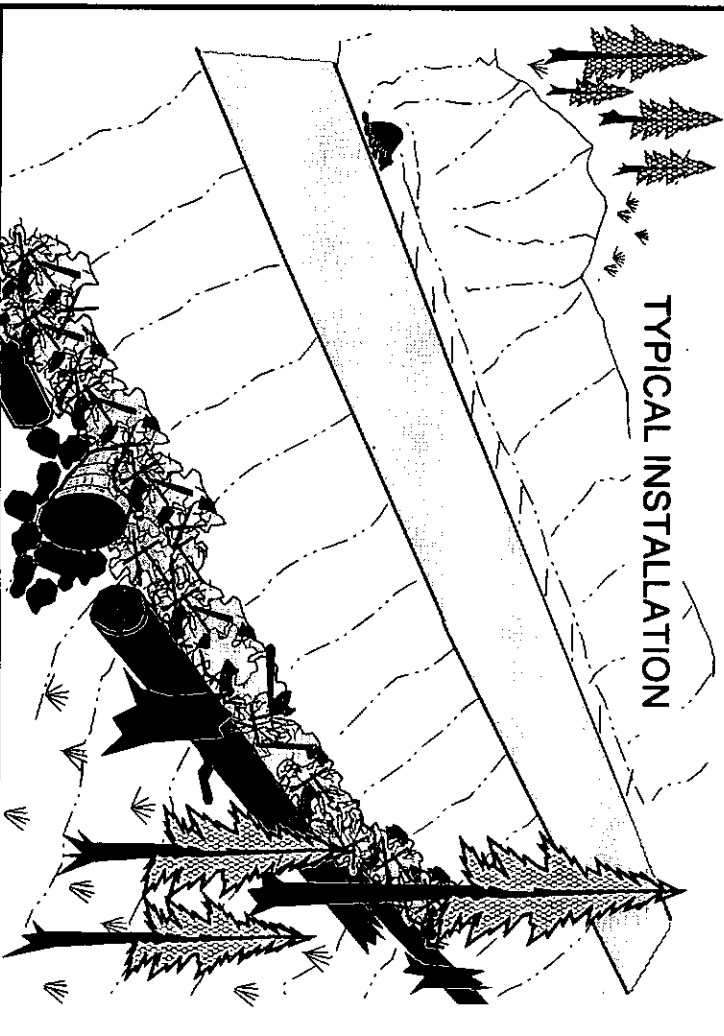
**SPECIFICATIONS**

Measured grade from B to A = - 2% or more  
 Measured grade from A to C = - 3% or more

% Road Grade	Length D	Length E
Under 5%	50'	50'
6	55'	50'
8	70'	60'
10	80'	65'
12	90'	70'
14	100'	75'
16	115'	80'



## WINDROW DIMENSIONS



## TYPICAL INSTALLATION

## SLASH FILTER WINDROW SPECIFICATIONS

Materials must be stockpiled prior to construction of windrows.

Cull logs must be anchored in place against undisturbed stumps, large rocks or trees at the toe of the fill.

Slash must be placed above the logs with a backhoe and tamped into place with the bucket.

Slash should be tamped so it is embedded approximately 6 inches into the fill surface to prevent water from running under the windrow.

Slash, limbs and tops must be smaller than 12 feet long and 6 inches diameter. Stumps and root wads may not be used.

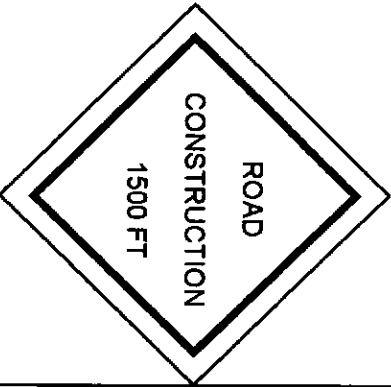
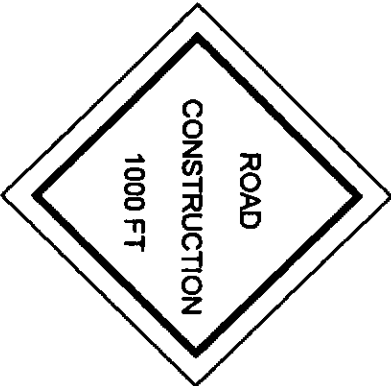
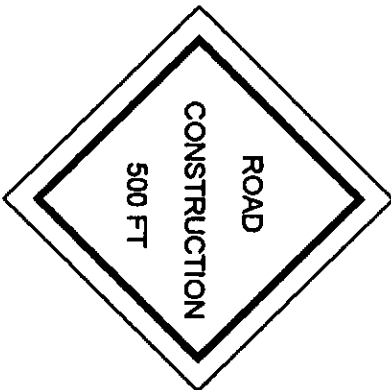
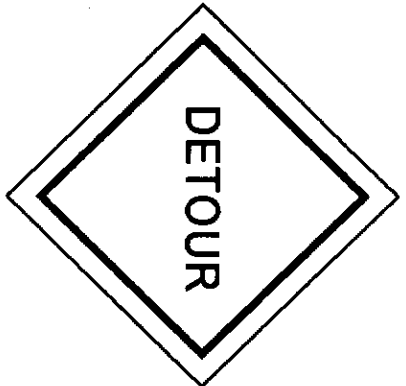
Anchor logs must be larger than 16 inches diameter. Reasonably sound cull logs may be used.

Windrows shall not interfere with the functioning of drainage structures or block stream channels.

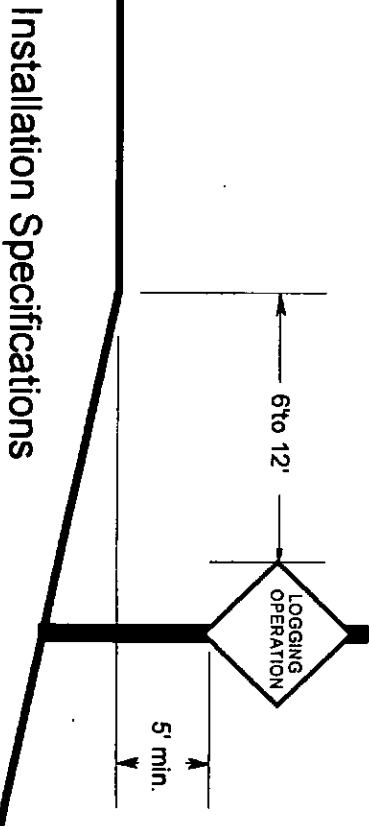
All locations will be staked or flagged by the Forest Officer.

When installing windrows over the top of culverts, pipe length must be increased by 3 - 4 feet to accommodate windrow placement.

# Warning Sign Specifications



Size: 30"x 30"  
Shape: Diamond  
Color: Diamond: Orange and Black. Barricade: Red and Silver  
Lettering: Minimum 4 inch letters. Standard Alphabet  
Series C. 1/2 inch Border.  
Reflective Background Required  
Mounting: Posts or portable sign stands, clearly visible to drivers. Do not mount on trees.



Installation Specifications

ROAD LOG  
WHITETAIL CREEK BRIDGE PROJECT

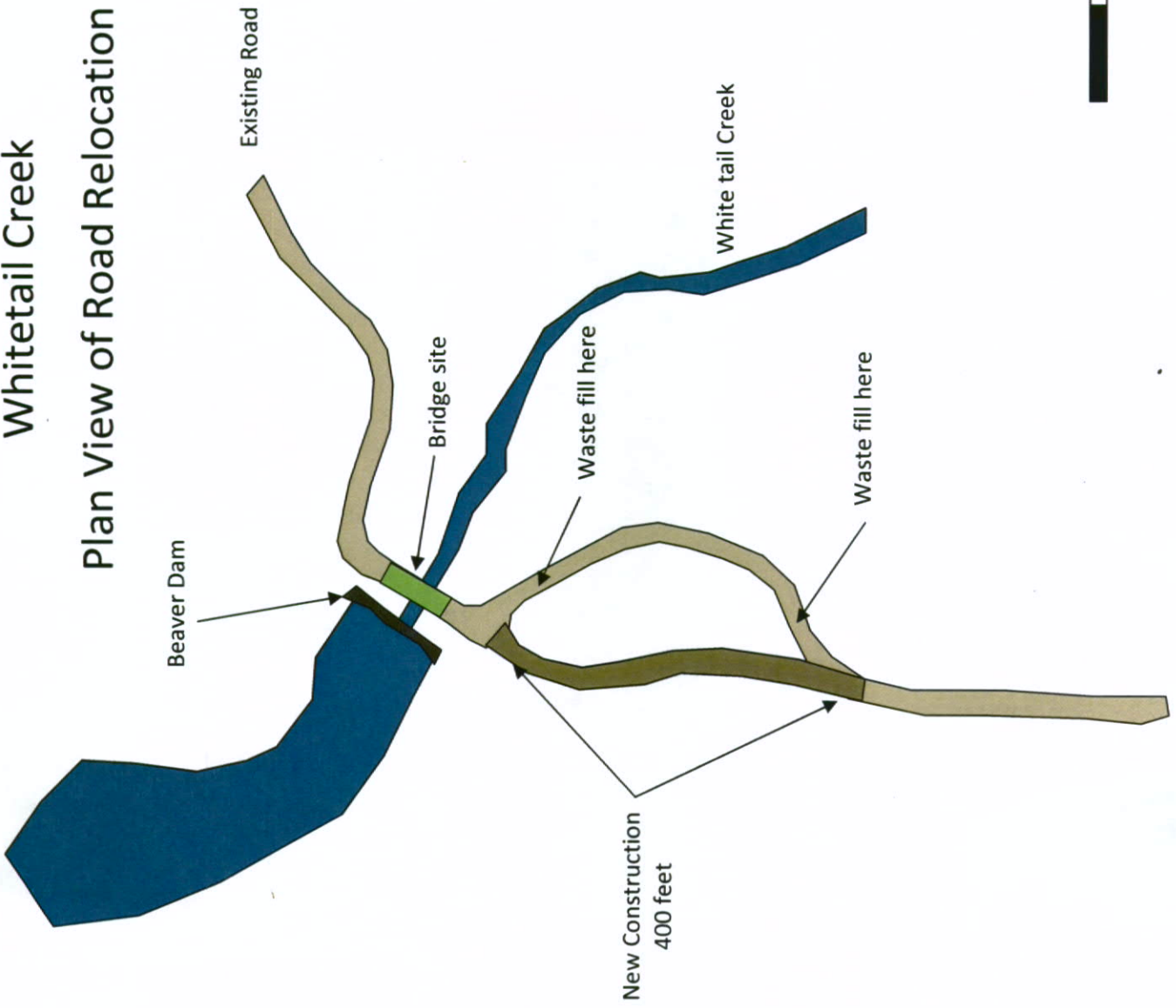
Road log begins at the top of the hill south of the bridge at the junction of the main road and the bermed spur road going straight ahead. The bermed road will be reconstructed as the main road approach to the bridge. Excess fill will be used to reclaim the existing road. Fill may be deposited on either end of the existing road cut, and shaped to reasonably conform to the previous ground line. Use clearing slash and available topsoil to reclaim the old road. Construct a 14 foot road with double ditch in the through cut.

- 0+00    Begin project 100 feet before junction. Build turnout right in the existing road curve.
- 1+00    Junction with bermed road. Remove berm, begin +4% grade into through cut.
- 1+50    Cut 2.6 feet, begin 0% grade over the top of the bench. Haul cut material back to the existing road to close it and recontour the ground.
- 2+00    Cut 1.2 feet; begin -6% grade to dip at 4+10 before bridge. Begin 4-inch crushed gravel surface.
- 3+00    Cut 3.7 feet; road is in an existing borrow cut. Begin moving the road to the right into the pit wall to align with the bridge.
- 3+85    75 feet from bridge. Over-excavate the road prism and install construction fabric. Begin 12 inches x 14 feet wide pit run gravel over fabric. Continue 4-inch crushed gravel.
- 4+00    Cut 11.3 feet; cutting through the main bench to meet the bridge approach. Use material to rebuild approach fills to the new bridge height. Waste excess material in the existing road to the right. Fill the old roadbed to near natural contour. Filter fence and slash windrows must be in place before depositing material in the old road.
- 4+10    Bottom of drain dip 50 feet from bridge. Through-cut daylight; begin 1.7 foot fill for bridge approach. Grade +2% to bridge deck. Widen the fill ahead starting at the base of the existing fill to achieve 14 foot road width after gravel is applied. Continue 12-inch pit run gravel lift. Construct a turnout in the old road curve.
- 4+60    South end of bridge. See bridge requirements.
- 5+20    North end of bridge. Begin 2-foot fill to new bridge height. Grade -2% away from bridge deck. Widen the fill ahead starting at the base of the existing fill to achieve 14 foot road width after gravel is applied. Continue fabric, 12-inch pit run gravel lift and 4-inch crushed gravel.
- 5+70    Bottom of drain dip 50 feet from bridge, curving to the right. Widen curve to 20 feet to allow lowboy passage. Pit run does not need to extend into curve widening. Fill depth 2.0 feet. Begin +6% grade.
- 5+95    75 feet from bridge. End of fabric and pit run gravel lift. Continue crushed gravel surfacing.
- 6+10    Fill 3.0 ft. Begin +9% grade to meet existing road ahead.
- 6+60    Back on existing road elevation. Grade ahead +11%.
- 7+10    Begin through-cut to reduce grade over edge of bench. Grade ahead +5%. Cut material may be used for approach fill below or wasted as directed by the Contract Supervisor.
- 7+60    Cut 1.0 feet.
- 8+10    Cut 1.0 feet. Begin taper out of through-cut.
- 8+60    End of through-cut. End of gravel. End of project.

# Whitetail Creek

## Plan View of Road Relocation

NORTH



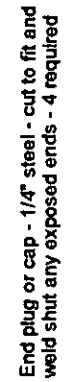
400 Feet





Diagram of a trapezoidal corrugated metal panel with the following dimensions and specifications:

- Top width: 3'-1"
- Bottom width: 2'-1-1/2"
- Height: 3'-11"
- Left slant height: 1'-8-1/2"
- Material: 16 Ga-2.2/3 x 3/4
- Finish: Corrugated Galvanized
- Installation: Backwall - Weld to outside face of frame



**END VIEW OF BRIDGE AND  
WING WALL**

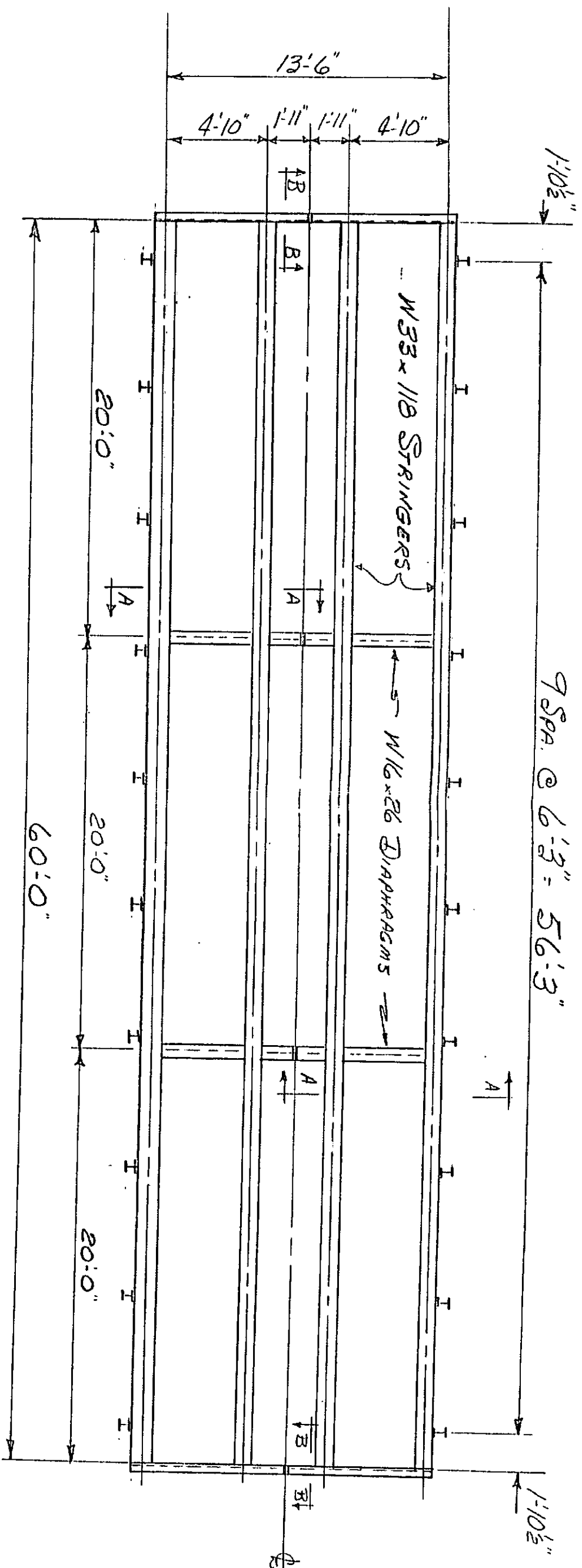
**Wing Wall Construction - 4 Needed  
Whitetail Creek Modular Steel Bridge**

A stylized logo featuring the word "PANTANA" in a bold, blocky font above the word "BARK" in a more decorative, script-like font. The letters are white with black outlines and are set against a dark, textured background.

Montana Department of Natural  
Resources and Conservation

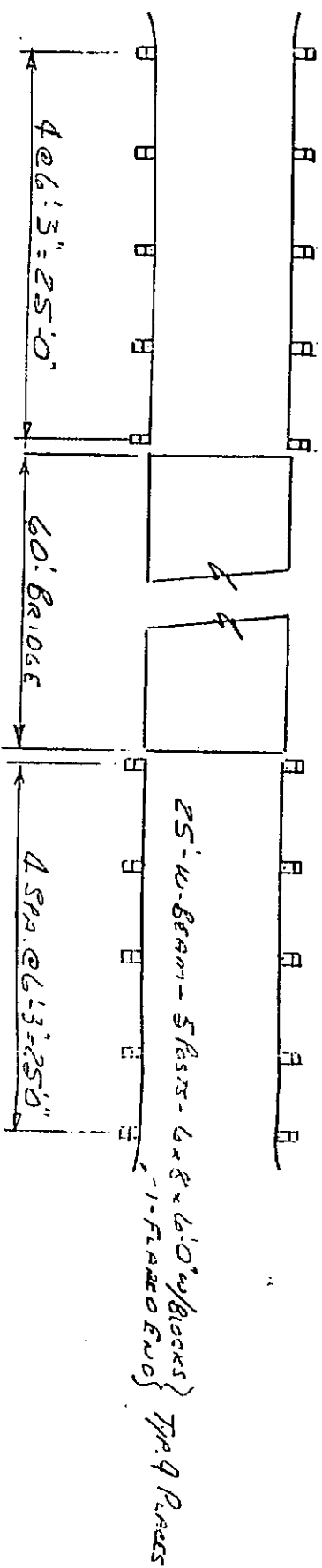
**A. Wolf 3/25/2009**



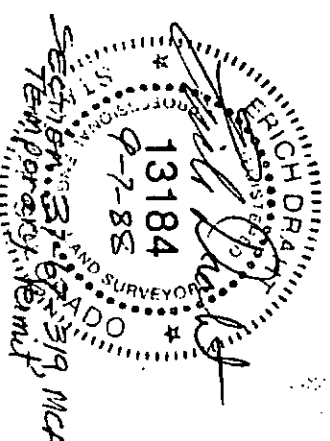


9 SPA. @ 6'-3" = 56'-3"

BRIDGE PLAN



Approach Rail Layout



HS20 loading.

BR2063

TRUM CREEK TIMBER Co. Inc.

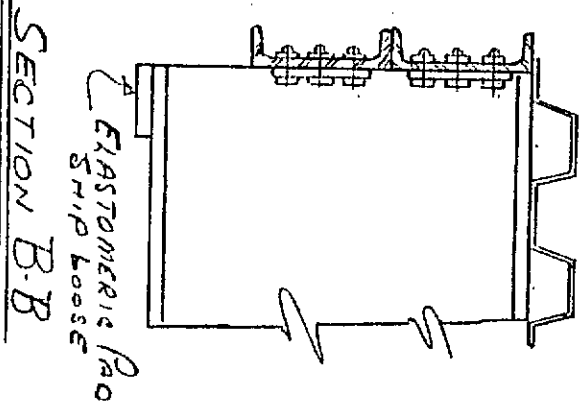
60'-0" TWO PIECE MODULAR BRIDGE

9-2-88

BIG "R" MANUFACTURING & DISTRIBUTING, INC.

P.O. BOX 1290  
GREELEY, COLORADO 80632  
PHONE (303) 356-9600

SH. #1



Holes. 13" 1/6 Ø

FINISH:

SAND BLAST - PRIME COAT  
FINISH COAT - FOREST GREEN

BP2063

Pum Creek Timber Co. Inc.

60'-0" Two Piece Modular Bridge

9-2-6

**BIG "R" MANUFACTURING & DISTRIBUTING, INC.**

**P.O. BOX 1290**

GREELEY, COLORADO 80632

**PHONE (303) 356-9600**

54.2

## Profile view

